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ABSTRACT

Educators are finding new and interesting ways to use computers as tools to educate and learn. For students to compete in the global community, it is imperative that educators embrace and use the World Wide Web in their curriculum. Hillside Elementary School in Minnesota uses the Internet, in a project called Web66, as a medium for student publishing, a resource, a communications teaching tool, and a collaborative tool. The paper describes each of the four uses. Web66, a project developed in collaboration with the University of Minnesota College of Education and Human Development, the Center for Applied Research, and the 3M Corporation, is a resource that helps a teacher learn how to set up their own Internet server, construct their own network, find other K-12 educators and students using the Internet, and find and use educational resources on the World Wide Web. (Author/SWC)

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Paper

The Internet as a Tool

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Being a teacher in the age of information is exciting. With the current technology, we have the opportunity to change the way we teach and how our students learn. But it is important that we use and teach our students how to use the Internet as one tool to help us all compete in an uncertain future.

One of the best analogies that addresses how schools have not used computers as a tool, is from a speech given by Doug Johnson, the Media and Technology Coordinator for the Mankato, Minnesota, public schools (*http://www.isd77.k12.mn.us/resources/dougwri/leg.talk.internet.html*).

In his speech, Doug describes a primitive tribe finding an abandoned car in the middle of a field. They may use the trunk of the car to store their belongings. They may honk the horn to scare away wild animals. They may sleep in the back seat to keep warm and dry. But until they see that car driving on a road they may never really understand the true potential of that car. The same situation has occurred in our schools with computers. We use them as fancy typewriters, as simulators, or as fancy workbooks for drill and practice. But, until we see that computer hooked up to a network or on the Internet we never quite realize the potential and true use of the computer as a tool to access information, to communicate and to collaborate.

There is a new trend where educators are finding exciting ways to use computers as tools to educate and to learn. Hillside Elementary School in Cottage Grove, MN is an example of that trend.

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As a Medium for Student Publishing

One of the uses of the Internet by Hillside Elementary is to publish their students work. The Hillside students began their Internet publishing by creating home pages: (*http://hillside.coled.umn.edu/class1/class1.html*), (*http://hillside.coled.umn.edu/class2/class2.html*). The students used a drawing program to create a picture for their page and then wrote a paragraph telling about themselves. The home pages gave the students an opportunity to make a presence on the Internet.

Think back to the years when you were in elementary school and one of the first assignments your teacher gave you was to write a paragraph about yourself and share it with the class. Let's look at Max's experience with writing that same type of paragraph but instead publishing it on the Internet. Max wrote about his goals for the future. He explained that he would like to be a scientist and go to Stanford. Max received e-mail from students who attended Stanford University. They gave Max advice on working hard in school so that his grades would be good enough for him to be accepted into Stanford University. Max was able to ask the students questions about the University. He has set a goal for himself and now he knows some of the things that will be required for him to reach that goal. This student wrote his paragraph and shared it with the world: (*http://hillside.coled.umn.edu/class1/MaxDR1/home.html*).

There are other things that schools publish on the Internet. The Hillside students created a Choose Your Own Adventure story for the Internet. In the process of learning about story structure, characterization, and using descriptive phrases the students collaborated as a class and created *The Buzz Rod Story:* (*http://hillside.coled.umn.edu/class1/Buzz/Story.html*).

While the students created a setting for Buzz's adventure they found it was important to use some facts. Using an atlas the students chose the city Grand Rapids in Michigan. They put Buzz Rod in a candy apple red Dodge Viper with black interior and sent him cruising down I69. Buzz sees a bright light and loses control of his car. That is where the story's Random Space Time Warp button comes in handy. Just click on the button and you are randomly sent to one of the individual endings created by the students. The teacher who finds this page on the Internet is able to access the lesson information used by the teacher to teach the project: (*http://hillside.coled.umn.edu/class1/Buzz/teacher.html*).

As a Resource

There is also technical information for the teacher who wants to know how to create pages for their own classroom's Choose Your Own Adventure Story. The Internet is used in education to access resources, and conduct research. The students at Hillside completed research projects (*http://web66.coled.umn.edu/hillside/franklin/Projects.html*) by using resources from the Franklin Institute (*http://sln.fi.edu/*), NASA, the National Weather Service, Berkeley's Hall of Dinosaurs, and countless others.

The Web66 Collaborative Research Project gave students the opportunity to work on research skills while using the Internet as a tool. The students learned how to formulate good questions, research and organize information, find information using the World Wide Web, and create their own style of presentation. They accessed experts in the topic areas they were studying. The students made real life, real job, connections to the different topic areas they were exploring.

- Amanda, a sixth grade student, created a page on space. She used a clickable map to organize her information on Jupiter, the Moon, comets, and the Earth: (*http://web66.coled.umn.edu/hillside/franklin/space/Project.html*).
- Regie chose a different way to share his research project on the heart. He created hyperlinks throughout his paper for others to find in-depth information

on a specific section of his project:
(*http://web66.coled.umn.edu/hillside/franklin/heart/Project.html*)

- Ryan and Max gathered information from many sources on Natural Disasters. On their page you will find information on a specific topic like earthquakes plus a list of links to other people's pages that give more information. Ryan and Max created their own earthquake simulation movie based on a lesson plan they found on the Internet:
(*http://web66.coled.umn.edu/hillside/franklin/disaster/Project.html*).

After the students placed their research projects on the Internet they received feedback from people around the world. Their projects became a beginning for further investigations and mentorships with others.

As a Communications Teaching Tool

The Internet is a valuable tool for teaching students to communicate with people they may not have access to without the Internet. The Hillside students used the Internet to communicate with survivors of World War II, using the Memories Listserv, while learning about historical fiction: (*http://www.tcns.co.uk/chatback/memories.html*). The students read novels about World War II. They kept journals about the characters lives. They accessed nonfiction materials about World War II to gather in-depth information about certain times and events they were reading about. The students used atlases to chart the different places the characters were located. Students had the opportunity to ask questions and interview the different panel members of the memories list.

The Hillside students were able to use the memories of the survivors of W.W.II to create their own historical fiction stories. While writing the stories the students were able to make the connection between historical fiction and real historical facts:
(*http://hillside.coled.umn.edu/1994-1995/ww2/historical.html*).

Projects like this one are greatly enhanced by using the Internet as a tool to communicate with people that are experts in the topic area the students are studying.

As a Collaborative Tool

One of the most powerful uses of the Internet in education is to collaborate with others. Teachers can collaborate with other teachers. Students collaborate with other students. Experts and educators all over the world become collaborators with the teachers and the students in a classroom. No longer is distance and time a barrier for educational collaborations.

The Franklin Institute's *Wind Project*: (*http://sln.fi.edu/tfi/units/energy/wind.html*) is an excellent example of how collaboration through the Internet can be a powerful tool in the classroom. Using the Franklin Institute as a mentor and a resource, a group of six schools worked together to learn about wind. The schools used the World Wide Web to publish the students work so that each school could view the projects created by students from the other collaborating schools:
(*http://hillside.coled.umn.edu/Wind/Wind.html*).

The students began by writing Windy Inspirations. This activity gave students the opportunity to connect wind to previous experiences that they may have had. The students also had the opportunity to see other's wind experiences. They conducted wind experiments by using different materials to measure and observe wind. Throughout this investigating, the students were able to communicate with other students from other schools. The students at Hillside Elementary drew on the experiments conducted by Captain Strong Elementary students using pinwheels
(*http://152.157.16.3/doc/salmon/wind*). The students used the pinwheel observations when

creating their own windmill blades. They also created wind projects that were shared through the use of the World Wide Web and CU-SeeMe.

Hillside Elementary shared their wind experiences by making a wind movie that could be accessed over the Internet (*ftp://weblink.coled.umn.edu/Wind.mov*), and concluded their part of the wind project by hosting an Internet fair. The students shared their projects and windmills with the community and the world using Cu-SeeMe (*http://hillside.coled.umn.edu/1994-95/Fair/Fair.html*).

Giving students the opportunity to collaborate is motivating for all of the students involved. The teachers have the opportunity to draw on each others ideas and to give their students a richer experience. The collaboration gave students access to six teachers instead of one.

Web66

Hillside Elementary is a pilot for the University of Minnesota Web66 project. Web66 is a resource that will help you to learn how to set up your own Internet server, to construct your own network, to find other K–12 educators and students using the Internet, and to find and use educational resources on the World Wide Web. Web66 has a comprehensive Registry of K–12 schools (*http://web66.coled.umn.edu/schools.html*) on the World Wide Web that is a great resource for locating information about possible collaborating schools from around the world.

The Web66 What's New Pages (*http://web66.coled.umn.edu/new/new.html*) are where you will find current links that are of interest to K–12 educators and students. Using the Web66 What's New Pages will help you to stay current with the rapidly growing World Wide Web education resources.

- The Web66 Classroom Internet Server Cookbook (*http://web66.coled.umn.edu/Cookbook/contents.html*) gives the educator step by step instructions for setting up a WWW, Mail, and FTP server using a Macintosh computer or *Windows 95*. The cookbook provides links to the software (ingredients) that you need to create each of the classroom servers.
- Using the Web66 Network Construction Set (*http://web66.coled.umn.edu/Construction/Construction.html*) helps the educator to identify and understand the different parts of a school network.
- Joining the Web66 Mailing List (*http://web66.coled.umn.edu/List/List.html*) gives the educator access to other educators who are using a World Wide Web server in their classroom.

The Web66 project provides teachers with the vehicle (Mustang) to cruise down Web66 on the World Wide Web. Web66 teachers cruise the web with the style of the '67 Mustang, deciding when to travel, which direction to travel, and how far to travel. Web66 teachers are in full control of their own destiny and can seek out the best educational destinations anywhere on the web (*http://mustang.coled.umn.edu/*).

By using Mustang, educators will have a management model for integrating the World Wide Web into their curriculum. They will design and implement Internet projects that meet their curriculum goals and graduation standards. Educators will have access to an online staff development program that will provide models and support. The Mustang also takes educators on a virtual Internet trip. Using the analogy of the Internet being a highway, Mustang takes educators through three stages of project design:

- Preparing to Travel
- Taking the Trip
- Returning to Home

In preparation for the trip, the educators need to know what possibilities are available and how they can proceed. Educators:

- "visit the online travel agent" and find examples of how the Internet is used to teach and to learn and the basis for that learning (*http://mustang.coled.umn.edu/howused.html*).
- "service their vehicles" and discover examples of acceptable-use policies, permission-to-publish forms, and state graduation standards (*http://mustang.coled.umn.edu/Started/Started.html*).
- "select some destinations" using the "select your destinations" link that provides a selection of jump pages divided by subject areas to give the educator a guided tour of the Internet in the K–12 setting (*http://mustang.coled.umn.edu/Exploration/Exploration.html*).
- "plan a route" (*http://mustang.coled.umn.edu/plan.html*) by viewing the example of an Internet project design under the "plan the routes" link. Implementation of an Internet project can be found under the "hit the road" link (*http://mustang.coled.umn.edu/Hit.html*).

Once the educator has taken their Internet trip, she or he will need to return home and unpack the gathered "loot." In this section of Mustang, educators can find an example of how a teacher would/could/should evaluate a final Internet project (**http://mustang.coled.umn.edu/loot.html**). Upon "returning home," educators can also view the published results of other educators' projects to possibly implement in their own classroom. This link is what Mustang terms the "slide show" (**http://mustang.coled.umn.edu/show.html**).

Conclusion

In 1994, the Web66 project began by putting Hillside Elementary School's Sixth Graders on the World Wide Web. At that time Hillside was the second elementary school in the world with a web server. Since that time, the number of K–12 web sites has steadily grown. It took fourteen months to get the first 500 school web sites in the Web66 International Registry of K–12 schools on the web. It took four months to get the next 500 school home pages up. It took two more months plus nine days to reach 1,500 schools. In the first three weeks of November 1995, 350 new school home pages were registered on Web66 (*http://web66.coled.umn.edu/schools/stats/stats.html*).

Today there are over 2,000 schools on the web. For our students to compete in the current global community, it is imperative that we as educators embrace and use this tool in our teaching. The Web66 project is a collaboration with the University of Minnesota College of Education & Human Development, the Center for Applied Research and Educational Improvement and the 3M Corporation.